Petroleum Chemistry 2000 vol.40 N4, pages 236-240

A pulse nuclear magnetic resonance study of the structure of resinous-asphaltenic components of crude oils

Kashaev R.
Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

Abstract

Pulsed magnetic resonance was used to determine the parameters of proton magnetic relaxation in crude oil specimens of a wide density range (p = 770-900 kg/m3). The measurements were made on a NMR relaxometer designed for the purpose. The dependence of proton relaxation parameters on viscosity of crudes and concentration of asphaltenes and resins was determined. Based on the obtained experimental data, a molecular dynamics model for the structure of the resinous-asphaltenic portion of petroleum was proposed. Calculated NMR parameters were fitted to their experimental counterparts.